



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,980	01/22/2004	Peter Vitruk		5989
7590	03/27/2006		EXAMINER	
<b>PETER VITRUK</b> 20029 99th Ct NE Bothell, WA 98011			VAN ROY, TOD THOMAS	
			ART UNIT	PAPER NUMBER
			2828	
DATE MAILED: 03/27/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/762,980 Examiner <i>Tod T. Van Roy</i>	VITRUK ET AL. Art Unit 2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 29 January 2006.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-8 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date: _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date: _____	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

## DETAILED ACTION

### ***Specification***

The previous objection of the abstract has been withdrawn.

### ***Response to Arguments***

Applicant should submit an argument under the heading “**Remarks**” pointing out disagreements with the examiner’s contentions. Applicant must also discuss the references applied against the claims, explaining how the claims avoid the references or distinguish from them.

Applicant's arguments filed 01/29/2006 have been fully considered but they are not persuasive.

With respect to claim 1, the applicant has described in his response certain differences between the current invention and the prior art of Sukhman. The examiner agrees with the applicants that differences are apparent between the instant invention and that of Sukhman, but these differences are not reflected in the claims. Claim 1 is believed to be completely taught by Sukhman’s figures 5, and 7-8.

The examiner suggests amending the limitations of claim 1 to include some of the differences apparent between the laser of Sukhman and that of the instant invention. For instance, as noted in the applicant’s remarks, the Sukhman device requires top and bottom plates as well as side-plate heat sinks that are not found in the current application. In order to overcome the *current* rejection, the examiner recommends including these or other (tube and/or heat sink layout as seen in

applicant's figures 2-3) limitations to distinguish the instant invention from that of the prior art.

The examiner notes that any suggested changes to the claims may not place the application in condition for allowance, as an updated search of the prior art would be necessitated.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-2, 4-6, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sukhman et al. (US 5894493).

With respect to claim 1, Sukhman discloses an RF excited gas laser comprising: an elongated electronics compartment having elongated external fins (fig.8 #170); and

an RF power supply placed inside electronics compartment (taught to be connected off of the RF electrodes, col.-8 lines 66-6, col.11 lines 33-38); and a pair of endplates attached to the opposite ends of the electronics compartment (fig.8 #'s 181, 182); and a sealed laser tube comprising of a metal tube having an external surface (fig.7 #110), a pair of end caps at the opposite ends of the metal tube forming a vacuum envelope for containing a laser gas (fig.5 #150, 120) and at least one pair of elongated electrodes inside of the metal tube configured for coupling to said RF power supply through RF coupling means (col.8 lines 55-64); and a pair of laser resonator mirrors placed on the end caps at the opposite ends of the tube forming a laser resonator aligned with the RF gas plasma discharge produced between said electrodes (fig.5 #120, 150); and a sheet-metal cover enclosing the laser tube and the electronics compartment forming a laser assembly (fig.8 #191, 190, 178, fig.7 #164, col.13 lines 1-3) having at least one pair of intake openings (fig.8 pair of openings for fans) and at least one pair of exhaust openings for the cooling air to flow through the laser assembly (fig.8 four slits on each plate #181, 182, col.11 lines 58-65); and at least one pair of fans placed at the intake openings of the laser assembly (fig.8 front/back); wherein said laser tube is placed inside the laser assembly (fig.8) and is attached to the endplates (fig.8) allowing for cooling air to enter the laser assembly through the intake openings and to flow through the laser assembly over the external surface of the tube and over the external fins of the electronic compartment and then exit the laser assembly through the exhaust openings. Sukhman does not teach the end plates to be flexibly attached to the laser tube. Sukhman does teach flexibly attaching other components, including the top and bottom

plates (col.11 lines 5-25). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the endplate to laser tube attachment of Sukhman with the flexibly attached components of Sukhman in order to reduce torsional distortion of the laser tube (col.11 lines 5-25).

With respect to claim 2, Sukhman discloses said RF coupling means comprise vacuum sealed RF electrical leads feedthrough connected to at least one electrode and coupled to said RF power supply (col.7-8 lines 66-6).

With respect to claim 4, Sukhman discloses the external surface of the laser tube comprises elongated fins to facilitate heat transfer from the electrodes to the tube (fig.8 #160).

With respect to claim 5, Sukhman discloses the electrodes inside of the laser tube are closely spaced to the walls of the tube to facilitate heat transfer from electrodes to the tube (col.8 lines 27-36).

With respect to claim 6, Sukhman discloses the electrodes inside of the laser tube are centered against the opposite corners of the tube (fig.15, electrodes centered vs. opposite corners of each side of the tube, i.e., the left electrode is centered vs. the upper left and lower left opposite corners, and the right electrode is centered vs. the upper right and lower right opposite corners).

With respect to claim 8, Sukhman discloses the laser gas to include CO<sub>2</sub>, N<sub>2</sub> and He (col.12 line 65).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sukhman in view of Hongo et al. (US 4875218).

With respect to claim 3, Sukhman teaches the RF gas laser as outlined in the rejection to claim 1, but does not disclose the use of a laser tube with a square cross section. Hongo teaches a RF gas laser (abs.) which uses a laser tube with square cross section (col.3 lines 5-6). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the gas laser of Sukhman with the square cross section of Hongo in order to obtain the desired modal profile (Hongo, col.3 lines 5-7).

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sukhman in view of Hoag (US 4534032).

With respect to claim 7, Sukhman teaches the RF gas laser as outlined in the rejection to claim 1, but does not disclose multiple pairs of electrodes to be placed inside of the laser tube. Hoag teaches a gas laser which uses multiple pairs of electrodes inside of the laser tube (fig.3). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the gas laser of Sukhman with the multiple electrodes of Hoag in order to couple the multiple electrodes, increasing the electrode surface area, with the existing outer fins in order to facilitate the transfer of heat from the laser tube (Hoag, col.5 lines 35-51).

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

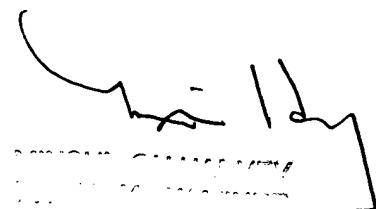
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tod T. Van Roy whose telephone number is (571)272-8447. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on (571)272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TVR

A handwritten signature in black ink, appearing to read "TVR", is positioned above a small, rectangular, faint printed box. The box contains the text "SEARCHED" and "INDEXED" on the top line, and "MAILED" and "RECEIVED" on the bottom line.